AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions or listings of claims for this application.

Listing of Claims:

Claims 1-43 (Canceled).

44. (Previously presented) A geogrid made by stretching and uniaxially orienting a plastics starting material which was provided with an array of holes, the geogrid comprising transverse bars interconnected by substantially straight oriented strands, at least some of the strands extending from one bar to the next at a substantial angle to the direction at right angles to the bars and alternate such angled strands across the width of the geogrid being angled to said direction by equal and opposite angles, the orientation of the angled strands extending into the bars.

45. (Previously presented) The geogrid of Claim 44, wherein said bars are interconnected only by oriented strands which do not extend in a direction at right angles to the bars.

46. (Previously presented) The geogrid of Claim 45, wherein the strands of each pair of adjacent angled strands meet immediately adjacent the respective bar.

47. (Previously presented) The geogrid of Claim 44, wherein between the locations where the strands meet the bar, the bar is unoriented, and at the locations where the strands meet the bar, the bar is slightly oriented in a direction at right angles to the bars so that the orientation of the strands extends across the bar to the respective strands on the other side of the bar.

48. (Previously presented) The geogrid of Claim 47, wherein between the locations where the strands meet the bar, the bars have a structure which is similar right across the geogrid.

49. (Previously presented) A geogrid made by stretching and uniaxially orienting a plastics starting material which was provided with an array of holes, the geogrid comprising transverse bars interconnected by substantially straight oriented strands, and wherein between the locations where the strands meet the bar, the bars are alternatively weakened and not weakened, the weakened zones in the bars adjacent to the first-mentioned bars being staggered so that a weakened zone in one bar is aligned with respective non-weakened zones in the adjacent bars.

50. (Previously presented) A geogrid made by stretching and biaxially orienting a plastics starting material which was provided with an array of holes, the geogrid comprising:

a first set of substantially straight oriented strands extending at an acute angle to a first direction;

a second set of substantially straight oriented strands extending at an acute angle to the first direction and, as considered in a second direction at right angles to the first direction, alternate (angled) strands of the two sets being angled to the first direction by substantially equal and opposite angles;

further substantially straight oriented strands extending in said second direction; and

junctions each interconnecting four of the angled oriented strands and two of the further oriented strands, at substantially each junction the crotch between each pair of adjacent strands being oriented in the direction running around the crotch, whereby there is continuous orientation from the edge of one strand, around the crotch and to the edge of the adjacent strand.

51. (Previously presented) The geogrid of Claim 50, wherein there are no oriented strands which extend substantially in the first direction.

52. (Previously presented) The geogrid of Claim 50, wherein there are only two said sets, whereby triangular mesh openings are formed by the angled strands and by the further strands.

53. (Previously presented) The geogrid of Claim 50, wherein the junctions comprise two thicker zones each connecting two angled strands and a further strand, and a thinner zone interconnecting the two thicker zones.

54. (Previously presented) The geogrid of Claim 50, wherein the angle between the axis of each angled strand and the first direction is between about 10° and about 20°.

55. (Previously presented) The geogrid of Claim 50, wherein the angle between the axis of each angled strand and the first direction is about 30°.

56. (Previously presented) The geogrid of Claim 50, wherein the first direction is the machine direction.

57. (Previously presented) The geogrid of Claim 50, wherein the angled strands and the further strands provide three sets of spaced, parallel, effectively rectilinear continuous tensile members which extend through the geogrid and each of which comprises an oriented strand, a junction, an oriented strand, a junction, and so on, each junction interconnecting respective strands of the tensile member and the strands of the tensile member being substantially aligned with each other, each junction functioning as a junction for a tensile member of each of the sets, a tensile member of each of the sets intersecting at each junction.

58. (Previously presented) A method of making a uniaxially oriented plastics material geogrid, comprising:

providing a plastics sheet starting material which has holes in an array of hexagons of substantially identical shape and size so that substantially each hole is at a corner of each of three hexagons, there being within the hexagon no holes of a size greater than or equal to the size of the first mentioned holes; and

applying a stretch to stretch out strand-forming zones between adjacent holes on sides of the hexagons and form oriented strands from such zones, thereby forming a structure having bars at right angles to the direction of stretch, interconnected by the oriented strands, the stretch being applied to such an extent that the orientation of the strands extends into the bar.

59. (Previously presented) The method of Claim 58, wherein the stretch is applied to such an extent that the orientation of the strands extends across the bar to the respective strands on the other side of the bar.

60. (Previously presented) A method of making a biaxially oriented plastics material geogrid, comprising:

providing a plastics sheet starting material which has holes in an array of hexagons of substantially identical shape and size so that substantially each hole is at a corner of each of three hexagons, there being within the hexagon no holes of a size greater than or equal to the size of the first-mentioned holes;

applying a stretch in a first direction to stretch out strand-forming zones between adjacent holes on sides of the hexagons and form oriented strands from such zones; and

applying a stretch in a second direction substantially at right angles to said first direction to stretch out strand-forming zones between adjacent holes on the sides of the hexagons and form oriented strands from the latter zones, whereby centre portions of the hexagons form junctions interconnecting the oriented strands, the stretching being applied to such an extent that the orientation of the strands extends into substantially each junction so that at substantially each junction, the crotch between each pair of adjacent strands is oriented in the direction running around the crotch, whereby there is continuous orientation from the edge of one strand, around the crotch and to the edge of the adjacent strand.

61. (Previously presented) The method of Claim 60, wherein the stretch in the first direction is applied in a direction substantially parallel to two sides of the hexagons, to stretch out zones between adjacent holes on the remaining four sides of the hexagons, and the stretch in the second direction stretches out zones between adjacent holes on the sides parallel to the first direction.

62. (Previously presented) The method of Claim 60, wherein said stretch in said second direction is not before said stretch in said first direction, and during said stretch in said second direction, restraint is applied to the material in said first direction, and after the second

stretch, before the material is allowed to relax in the said second direction, said restraint is discontinued.

63. (Previously presented) The method of Claim 60, wherein each hexagon is substantially symmetrical about an axis which extends in said direction of stretch or in said first direction.

64. (Previously presented) The method of Claim 60, wherein each hexagon is arranged so that two opposite holes delineating the hexagon are substantially aligned in the said direction of stretch or in said first direction, and the stretch in said direction of stretch or in said first direction is applied in a direction substantially parallel to two sides of the hexagons, to stretch out zones between adjacent holes on the remaining four sides of the hexagons.

65. (Previously presented) The method of Claim 60, wherein the sides of the hexagons are all substantially equal, as measured between the centres of the respective holes.

66. (Previously presented) The method of Claim 65, wherein the oriented strands which are formed in said second direction of stretch are stretched out to a lower stretch ratio than the oriented strands which are formed in said first direction of stretch so that the latter oriented strands extend at substantially 60° to the former oriented strands.

67. (Previously presented) The method of Claim 60, wherein the vertices of the hexagons are aligned in the stretch direction or first stretch direction, and the vertex pitch of each hexagon is less than the diagonal pitch.

68. (Previously presented) The method of Claim 67, wherein the ratio of the major pitch of the hexagon to the minor pitch of the hexagon is about 2.1:1 to about 3.2:1.

69. (Previously presented) The method of Claim 67, wherein the ratio of the major pitch of the hexagon to the minor pitch of the hexagon is about 2.6:1.

70. (Currently amended) A method of making a plastics material mesh structure, comprising:

providing a plastics sheet starting material which has holes in a regular pattern, which holes define potential strand-forming zones extending between respective holes and which on stretching the starting material in one direction would stretch out to form oriented strands;

forming depressions in and thereby weakening some but not all said potential strand-forming zones without material removal when the plastics material is at a temperature below the lower limit of its melting range, said depressions defining a regular pattern, wherein in said one direction, said depressions are formed in every other potential strand-forming zone; and

applying a stretch in said direction so that the weakened potential strand-forming zones form oriented strands but the non-weakened potential strand-forming zones do not form oriented strands though some stretch may be applied thereto and whereby the mesh structure so produced is not that that would be produced from the starting material without said depressions.

71. (Previously presented) The method of Claim 70, wherein the starting material is also stretched in a direction at right angles to said one direction, to form oriented strands from further respective potential strand-forming zones.

72. (Previously presented) The method of Claim 71, wherein no said depressions are formed in the respective potential strand-forming zones for the second-mentioned direction stretch, whereby said potential strand-forming zones which have not been formed with depressions form extended junctions between said oriented strands.

73. (Previously presented) The method of Claim 71, wherein stretching in said one direction is the second stretch, following stretching in said second-mentioned direction.

74. (Canceled).

75. (Previously presented) A method of making an oriented plastics material geogrid, comprising:

providing a plastics sheet starting material which has holes on a rectangular grid whose axes extend in a first direction and in a second direction substantially at right angles to the first direction, thereby providing first rows of holes extending in the first direction and second rows of holes extending in the second direction, and which starting material has weakened zones between alternate pairs of adjacent holes in each first row, the weakened zones being staggered as between adjacent first rows so that a weakened zone in one first row is adjacent a non-weakened zone in the adjacent first row on either side;

applying a stretch in the first direction to stretch out strand-forming zones between adjacent holes in each second row to form oriented strands from such zones; and

applying a stretch in the second direction to stretch out the weakened zones to form oriented strands from the weakened zones without stretching out non-weakened zones between adjacent holes of the first rows to the same extent as the weakened zones are stretched;

whereby the non-weakened zones form junctions each of which interconnects six of the oriented strands.

76. (Previously presented) A method of making biaxially oriented plastics material mesh structure which has oriented strands which extend at an angle other than 90° to the first and second direction of stretch, comprising:

providing a plastics sheet starting material which has holes in a regular array;

applying a stretch in a first direction to stretch out respective strand-forming zones between adjacent holes and form oriented strands from such strand-forming zones;

applying a stretch in a second direction substantially at right angles to said first direction to stretch out other respective strand-forming zones between adjacent holes and form further oriented strands from the latter strand-forming zones, whilst applying restraint to the material in the first direction;

subsequently discontinuing said restraint; and

subsequently allowing the material to relax in the second direction.

77. (Previously presented) A method of making a biaxially oriented plastics material geogrid, comprising:

providing a plastics sheet starting material which has holes in an array of hexagons of substantially identical shape and size so that substantially each hole is at a corner of each of three hexagons, there being within the hexagon no holes of a size greater than or equal to the size of the first-mentioned holes, the vertices of the hexagons being aligned in a first direction, the vertex pitch of each hexagon being less than the diagonal pitch;

applying a stretch in the first direction to stretch out strand-forming zones between adjacent holes on sides of the hexagons and form first and second oriented strands from such zones, the first and second oriented strands extending in different directions to each other; and

applying a stretch in a second direction substantially at right angles to the first direction to stretch out strand-forming zones between adjacent holes on the sides of the hexagons and form third oriented strands from the latter zones, whereby centre portions of the hexagons form junctions interconnecting the oriented strands and triangular meshes are formed each by a first oriented strand, a second oriented strand and a third oriented strand, the first oriented strands entering a junction being substantially aligned and the second oriented strands entering a junction being substantially aligned.

78. (Previously presented) The method of Claim 77, wherein the ratio of the major pitch of the hexagon to the minor pitch of the hexagon is about 2.1:1 to about 3.2:1.

79. (Previously presented) The method of Claim 77, wherein the ratio of the major pitch of the hexagon to the minor pitch of the hexagon is about 2.6:1.

80. (Previously presented) The method of Claim 77, wherein said stretch in said second direction is not before said stretch in said first direction, and during said stretch in said second direction, restraint is applied to the material in said first direction, and after the second stretch, before the material is allowed to relax in the said second direction, said restraint is discontinued.

81. (Previously presented) The method of Claim 77, wherein stretching is applied to such an extent that the orientation of the strands extends into substantially each junction so that at substantially each junction, the crotch between each pair of adjacent strands is oriented in the

direction running around the crotch, whereby there is continuous orientation from the edge of one strand, around the crotch and to the edge of the adjacent strand.

82. (Previously presented) A mesh structure made by the method of Claim 76.

83. (Previously presented) A geogrid made by stretching and biaxially orienting a plastics starting material which was provided with an array of holes, the geogrid comprising at least three sets each of at least three spaced, parallel, effectively rectilinear continuous tensile members which extend through the geogrid and each of which comprises an oriented strand, a junction, an oriented strand, a junction, and so on, each junction interconnecting respective strands of the tensile member and the strands of the tensile member being substantially aligned with each other, the tensile members of each set making an angle with the tensile members of the other sets, and the junctions of one set also functioning as the junctions of the other sets whereby a tensile member of each of the sets intersects at the junction, mesh openings being defined by the tensile members, at substantially each said junction the crotch between each pair of adjacent strands being oriented in the direction running around the crotch, whereby there is continuous orientation from the edge of one strand, around the crotch and to the edge of the adjacent strand.

84. (Previously presented) The geogrid of Claim 83, wherein there are three sets of the continuous tensile members, six strands being interconnected by each junction and triangular mesh openings being defined by the tensile members.

85. (Previously presented) The geogrid of Claim 83, wherein one set of tensile members is substantially in the transverse direction.

86. (Previously presented) The geogrid of Claim 83, wherein said angle is substantially 60°.

87. (Previously presented) A method of strengthening a particulate material, comprising embedding in the particulate material the geogrid of Claim 44.

88. (Previously presented) A method of strengthening a particulate material, comprising embedding in the particulate material the geogrid of Claim 50.

89. (Previously presented) A method of strengthening a particulate material, comprising embedding in the particulate material the geogrid of Claim 83.

90. (Previously presented) A geoengineering construction comprising a mass of particulate material strengthened by embedding therein a geogrid as claimed in Claim 44.

91. (Previously presented) A geoengineering construction comprising a mass of particulate material strengthened by embedding therein a geogrid as claimed in Claim 50.

92. (Previously presented) A geoengineering construction comprising a mass of particulate material strengthened by embedding therein a geogrid as claimed in Claim 83.

93. (Previously presented) A geogrid made by the method of claim 75.

94. (Previously presented) A geogrid made by the method of claim 77.

95. (Previously presented) The geogrid of claim 44, wherein the orientation of each said angled strand extends generally in the direction of stretching across the respective bar to the respective said angled strand on the other side of the bar, the bars having respective centre lines and the orientation at the bar centre line being substantially less than the orientation of said angled strands.

96. (Previously presented) The method of claim 58, wherein said stretch is applied to such an extent that the orientation of each said strand extends generally in the direction of stretching across the respective bar to the respective said strand on the other side of the bar, the bars having respective centre lines and the orientation at the bar centre line being substantially less than the orientation of said strands.

97. (Previously presented) The method of claim 58, wherein said stretch is applied to such an extent that between locations where the strands meet the bar, the bar is unoriented, and at the locations where the strands meet the bar, the bar is slightly oriented in a direction at right angles to the bars so that the orientation of the strands extends across the bar to the respective strands on the other side of the bar.

98. (New) The geogrid of claim 57, wherein said plastics starting material has a minimum thickness of 2.0 mm.

99. (New) The geogrid of claim 98, wherein said plastics starting material has a minimum thickness of 4.7 mm.

100. (New) The method of claim 60, wherein said plastics sheet starting material has a minimum thickness of 2.0 mm.

101. (New) The method of claim 100, wherein said plastics sheet starting material has a minimum thickness of 4.7 mm.

102. (New) The method of claim 77, wherein said plastics sheet starting material has a minimum thickness of 2.0 mm.

103. (New) The method of claim 102, wherein said plastics sheet starting material has a minimum thickness of 4.7 mm.

104. (New) The geogrid of claim 83, wherein said plastics starting material has a minimum thickness of 2.0 mm.

105. (New) The geogrid of claim 104, wherein said plastics starting material has a minimum thickness of 4.7 mm.